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SOCIOCULTURAL DETERMINANTS OF ACHIEVEMENT AMONG MEXICAN-AMERICAN STUDENTS.

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THE PRELIMINARY FINDINGS OF THE SOUTHWEST EDUCATIONAL DEVELOPMENT LABORATORY'S MATHEMATICS PROJECT ARE PRESENTED IN THIS MONOGRAPH. IN THIS FIRST PHASE OF THE PROJECT, AN ATTEMPT WAS MADE TO IDENTIFY UNIQUE CHARACTERISTICS OF MEXICAN AMERICAN FAMILIES THAT MAY AFFECT THE EDUCATIONAL ACHIEVEMENT OF THEIR CHILDREN. DATA WERE COLLECTED AND ANALYZED FOR 263 HIGH SCHOOL STUDENTS (GRADES 7-12) IN A SOUTHWESTERN COMMUNITY. THE STUDENT QUESTIONNAIRE REVEALED 9 INDEPENDENT FACTORS CHARACTERIZING THE EMPHASIS THAT PARENTS PLACE ON EDUCATION, THE LANGUAGE USED IN THE HOME, AND THE CHILD'S SELF-IMAGE AND ACADEMIC MOTIVATION. THE RESULTS OF A PRELIMINARY ANALYSIS SUGGEST THAT MEXICAN AMERICAN CHILDREN MAY NOT HAVE AS MUCH CONFIDENCE IN THEIR ABILITY TO SUCCEED IN SCHOOL AS THEIR CLASSMATES. FOR EXAMPLE, ACHIEVEMENT IN BOTH ENGLISH AND MATHEMATICS APPEARS TO BE HIGHLY AFFECTED BY THE CHILD'S CONFIDENCE IN HIS ABILITY TO SUCCEED IN SCHOOL AND BY THE EMPHASIS THE PARENTS PLACE ON EDUCATION, WHILE HIS MASTERY OF ENGLISH APPEARS TO BE INFLUENCED BY THE LANGUAGE SPOKEN IN THE HOME AND BY THE FATHER'S EDUCATIONAL BACKGROUND. IN CONTRAST, ACHIEVEMENT IN MATHEMATICS APPEARS TO BE RELATED IN THE STUDENT'S DESIRE TO ACHIEVE IN SCHOOL. THE RESULTS OF THIS STUDY SUGGEST THAT IT MAY BE POSSIBLE TO IMPROVE THE ACADEMIC PERFORMANCE OF MANY MEXICAN AMERICAN CHILDREN BY PROPER DESIGN OF EDUCATIONAL PROGRAMS. (ES)

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PREFACE

This monograph presents the preliminary findings of the Southwest Educational Development Laboratory's Mathematics Project. The first phase of the project has attempted to identify unique characteristics of Mexican-American families that may affect the educational achievement of their children.

Data were collected and analyzed for 263 high school students in the seventh to the twelfth grades in a Southwestern community. A factor analysis of the student questionnaire revealed nine independent factors that characterize the emphasis that parents place on education, the language used in the home, and the child's self-image and academic motivation.

Mexican-American families differ from the other families studied in several important respects. Spanish appears to persist as the predominant language used in the home even among families that have resided in the United States for four generations. Also, as has been documented by other studies, the educational and occupational level of the parents of Mexican-American children remain consistently low on the whole.

The English grades of Mexican-American children were found to be below those of their classmates despite the fact that Mexican-American students evidenced a greater desire to obtain good grades in school than their classmates. Moreover, there appears to be little or no difference between Mexican-American families and other families with respect to the amount of emphasis on education that the child experiences in the home. One would suspect that language difficulties continue to impair the academic performance of these children despite the high educational aspirations of parent's and child.

Furthermore, the results of a preliminary analysis suggest that Mexican-American children may not have as much confidence in their ability to succeed in school as their classmates. This low level of self-confidence among Mexican-American high school students may be largely an outgrowth of the students' experiences in the school, although, conclusive evidence concerning this point is presently lacking.

Achievement in both English and mathematics appears to be highly affected by the child's confidence in his ability to succeed in school. Also, the emphasis that parents place on education is directly related to the child's level of performance in both subjects.

The student's mastery of English as taught in the school, appears to be influenced by the language spoken in the home and by the father's educational background. In contrast, achievement in mathematics appears to be related to the student's desire to achieve in school.

The results of this study suggest that it may be possible to significantly improve the academic performance of many Mexican-American children by designing educational programs that directly attempt to improve children's confidence in their ability to fulfill the expectations of their parents and the school.

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INTRODUCTION

One of the largest ethnic sub-groups in the United States consists of the Spanish-speaking. Approximately eighty percent of the estimated total Spanish-speaking group of 3,600,000 reside in the Southwest. The largest concentrations are in California and Texas, nonetheless, in New Mexico Spanish-speaking people comprise forty percent of the total population of the state.[1]

While primarily Mexican in origin, the Spanish-speaking people of the Southwest are not a homogenous group. They consist of recent immigrants from Mexico, commonly referred to as Mexican-Americans, as well as families who trace their heritage back to 1598 when a Spanish settlement was founded in Northern New Mexico.[2] This latter group proudly refer to themselves as Spanish-Americans.

Clustered in urban enclaves called barrios, this group of people provides much of the agricultural labor force in the Southwest. They also hold in varying degrees to traditional cultural patterns even after residing in the United States for several generations. These patterns include such characteristics as (1) emphasis upon the central importance of the family, (2) present-time orientation, (3) limited stress on material gains, (4) the father as the authority figure, (5) the inferior position of women, (6) little value placed on formal education, (7) a fatalistic outlook on life, (8) and accommodating attitude toward the solution of problems and, (9) an emphasis on being rather than doing.[3]

A number of studies have documented these unique cultural characteristics, yet few have attempted to relate these cultural characteristics to the performance of Mexican-American children in school. Despite progress by the younger generation, an extraordinary educational gap exists between Mexican-Americans and other children, white and non-white. This is evidenced particularly by the low proportion of Mexican-Americans completing high school or attending college.[4]

The findings and interpretations embodied in this paper reflect the preliminary findings of the Southwest Educational Development Laboratory Project in Mathematics being conducted in El Paso, Texas. The data reported here are from a pilot study conducted in another Southwestern community.

The design of the overall project reflects extensive emphasis upon identifying cultural and social factors and variations among sub-groups of the population under study (Mexican-Americans) and relating these cultural characteristics to success in mathematics. The major purpose of the pilot study was to identify distinctive background variables and to study differences among four generations of Mexican-Americans and between this ethnic group and Anglo students.

The home environment is of central concern in this study; first, because of the unique structure of the home among Mexican-American families; second, because increasingly, the home environment is being recognized as probably the most important and pervasive determinant of educational development.

In this respect Dave[5] and Wolf[6] in their studies of the socialization process that occurs in the home have identified a number of variables that describe the home environment in terms of achievement press, language models, academic guidance, the activities of the family, the family's intellectual interests, and the family's work habits.

Dave found that his overall index of the home environment correlated .80 with a total score on the Metropolitan Achievement Test. Wolf found a multiple correlation of .76 between these variables that describe the home environment and the Henmon-Nelson IQ test.

More recently, support for the pervasive influence of these background factors on subsequent school achievement has been provided by one of the major conclusions of the Coleman study; namely, that the largest portion of variation in achievement among students who attend different schools is not due to differences in the school programs, staff, and facilities, but rather is a consequence of variations in the background of children when they first enter school.[7] Moreover, Coleman's data demonstrate that children from various ethnic groups not only enter the school at a measurable disadvantage as illustrated in Figure 1, but that the disadvantage becomes more pronounced as they progress through school as measured at the twelfth grade level.

FIGURE 1

FIGURE 2

However, the contention that children from minority ethnic groups may be inherently inferior seems implausible. Klienberg's[8] studies which also are supported by Sheldon's[9] work emphasize that the difference is more likely an artifact of differences in family background, cultural values, and socioeconomic status. For example, one of the ways in which membership in a minority racial or ethnic group may depress educational achievement and aspirations is by creating a home environment where there is an acute feeling of lack of opportunity both in education and occupations.[10] This inability to comprehend a means of translating aspiration into reality enhances the development in the child of a negative self image. A study of male youths who had quit school and joined the Job Corps would appear to support this observation.[11] In accounting for their disinterest in formal education, Gottlieb suggests that these youth fail to relate school programs to their future vocational aspirations and expectations. Whatsmore, they meet few adults who can assist them in clarifying or attaining their goals.

Ethnic minorities tend to display integrated cultural patterns that influence the child's response to school. Altering those patterns so that the child may have a better chance of academic success, which, in turn, is closely tied to vocational success, is extremely difficult. Understanding these cultural patterns and their effect on educational achievement, then, is the central concern of this study.

DETERMINANTS OF ACHIEVEMENT AND ACHIEVEMENT MOTIVATION

DEMOGRAPHIC AND ECOLOGICAL FACTORS

By far, socioeconomic status has been used most frequently as a summary measure of ecological and demographic variables that effect school performance. Lavin cites

thirteen major studies that demonstrate this relationship.[12] SES as measured by parents' education, occupation, and income appears to summarize a large number of values, attitudes, opinions, and patterns of behavior.

A number of these studies have clearly demonstrated a relationship between intelligence and SES.[13] However, Wolf's study shows that various measures of SES such as parents' education and occupation only correlate about .40 with a standard measure of intelligence.[14] In contrast, he found that intelligence correlates .76 with a set of variables that describe the home environment. Friedhoff in another study related intelligence and SES to grades as a measure of academic performance.[15] When intelligence was controlled, however, the correlation between SES and grades dropped from about .40 to .25.

Achievement motivation also appears to be related to SES as demonstrated by Rosen.[16] Both factors were in turn related to high school grades. However, when he controlled for achievement motivation, the relationship between SES and grades almost disappeared. One would conclude from these studies that socioeconomic status is related to academic performance but that a significant amount of variance in achievement is left unaccounted for. It might be hypothesized however, that a combination of SES and selected background variables might well account for a significant portion of the achievement variance. The studies alluded to point out the difficulties of working with single measures in an attempt to find predictors of achievement.

Achievement Motivation

A second major factor influencing achievement, again with roots in the family environment, is the individual's need to achieve. McClelland concludes as a result of his studies of achievement motivation that:

> The data we have to date strongly support the hypothesis that achievement motives develop in cultures and in families where there is an emphasis on the independent development of the individual. In contrast, low achievement motivation is associated with families in which the child is more dependent on his parents and subordinate in importance to them.[17]

Another study of parental attitudes of first graders by Stendler, found achievement to be related to parents' aspirations for the child and the amount of assistance given to the child in preparing for school.[18] Sears and Lewin's studies of pre-school children indicate that the level or rewards and expectations established by parents influences the level of goals set by the child.[19] This correspondence between parents' and child's aspiration is further borne out by the work by Anderson[20] and Jucknat[21] with eight year old and eleven year old children respectively.

Kahl explored the family influences on high school students in order to account for different aspiration regarding college.[22] He found that boys whose parents were discontented about their own status encouraged their sons, to use education as a means of social mobility. These children were highly motivated to overcome the obstacles to attaining a college education.

Results of these studies suggest that ethnocentrism may also restrict the aspirations of members of an ethnic group. For example, among Mexican-Americans the centrality of the family may restrict mobility and vocational aspirations of children.

Achievement motivation in turn is related to academic performance. A number of studies have demonstrated this fact at the college level but few have dealt with high school students. Notably, Rosen found that scores on the Thematic Apperception Test were related to high school grades.[23] Also Bresee found a positive relationship between aspiration levels and achievement in another high school study.[24] Again the evidence suggests a moderate association between academic performance and achievement motivation. Motivation, then, is a factor associated not only with the child's performance but appears to be an outgrowth of the child's relationship to reference groups such as parents and peers.

Self Concept of Ability

A number of investigations have explored the relationship between the child's self-concept of ability and his performance in school. Studies by Jersild[25], Reeder[26], Stevens[27], and Brookover and Thomas[28] all demonstrate a significant relationship between student achievement and positive self-image.

Another study compared highly intelligent high school students who differed greatly in achievement.[29] An adjective checklist was used to assess the student's self-image. A positive self-concept as indicated by adjectives related to academic work was found to be the factor that differentiated the two groups. However, the relationship between self-concept and achievement may be more complex than appears at first. A study by McDavid suggests that academic success may result in a more positive self-image which, in turn, may lead to increased success in school.[30]

Not too surprisingly the origins of self-image are to be found within the family. Evidence of the family influence on self-concept of ability is provided by several studies. For example, Jourard and Remy demonstrated that self-appraisal by children are highly related to their perception of their parents' appraisal of them.[31] Also Ausubel found that the level of children's aspirations, their frustration, their ideational independence from their parents, and the maturity of their personalities were all related to the children's perceptions of their parents' valuation of them.[32] The Brookover-Thomas study cited earlier also found that self-concept of ability was significantly related to the perceived evaluation of significant others, notably parents.[33]

One study demonstrated a relationship between self-image and achievement and achievement motivation. Martire found achievement motivation to be positively related to the discrepancy between what a person thinks he is like and what he ideally aspires to be.[34] This last study suggests that self-concept of ability is related to other factors that affect academic performance. Significant others also include the role models found in the schools. Such models may provide another evaluation of others outside the peer structure and family.

Student-Teacher Relationships

The nature of the relationship established between the student and his teachers is related to a number of the factors that have been discussed earlier in the paper. Malpass measured the degree of favorableness of students perceptions of teachers, classmates, discipline, achievement, and school in general at the elementary level.[35] Favorable perceptions toward teachers and achievement correlated highly with grades even when ability was controlled.

Davidson and Lang studied the relationship between children's perception of their teachers' attitudes toward them and their own self-image, academic achievement, and classroom behavior.[36] Children's self-perceptions were found to be similar to their perceptions of teachers' feelings toward them. Also the more favorable the child's perception of his teachers' feelings, the higher his achievement rating.

Ryan conducted a major study of teacher characteristics and related these characteristics to pupil behavior.[37] He found for example that pupils were responsible and participated in classes where the teacher was original and adaptable. At the elementary level Christensen, found achievement in arithmetic and vocabulary to be greater for students whose teachers had high scores on a warmth scale.[38]

All of these studies suggest the existence of a relationship between teacher behavior and student behavior. This relationship appears to influence achievement motivation as well as achievement although, this influence appears to be greatest at the elementary level.

Language

Language is important to academic performance not only because it is a subject taught in the schools but it is also the medium of instruction. In particular the home environment is the crucial factor that influences the development of the language facility.

Bernstein studied the relationship of language development of social class.[39] According to his observations children from middle class homes speak a well developed formal language, whereas, lower class children speak a vernacular comprised of short incomplete sentences. This differential language facility affects their intellectual development and academic performance.

Much of a child's language development takes place before he reaches the school as documented by Davis' study of linguistic development.[40] However, even after a child enters school the family continues to affect this use of language. Milner found, for example, that the verbal interaction between the child and his parents has a significant affect on the development of his ability to read in the first grade.[41]

Language usage in the home is particularly important in the present study since in many Mexican-American families, Spanish continues to be the predominant language spoken in the home even among third and fourth generation immigrant families.

SURVEY DESIGN

A model that summarizes the results of the studies reviewed in the previous section, and which forms the basis for the present research is depicted in Figure 3. Aspects of the home environment that have been identified by other studies as relevant to the child's academic achievement and achievement motivation include patterns of language usage among members of the family, the nature of the achievement values held by the parents, the degree of achievement press experienced by the children, the educational levels of the mother and father and the occupational status of the father.

FIGURE 3

It is hypothesized that the child's achievement in school, achievement values, self-concept of ability, post high school plans, participation in extracurricular school activities, and attitudes toward his teachers and the school will be significantly related to the structure of the home environment as described by the characteristics previously enumerated.

Since, as cited earlier in the paper, a number of studies have demonstrated unique characteristics of Mexican-American families, one of the major purposes of this study is to explore differences in the family environment among four generations of Mexican-Americans and to compare Mexican-American families with families with other national origins. In this way we hope to identify cultural characteristics that affect the Mexican-American child's relationship to the school. Furthermore, we hope to better understand the process of socio-cultural change.

In order to examine the questions that were raised regarding socio-cultural change among Mexican-Americans and environmental factors that influence the achievement of Mexican-American children in the school, a preliminary study was undertaken in a Southwestern community. Situated approximately fifty miles from the Mexican border, the town currently boasts a population of approximately 50,000. Mexican-American families make up about fifty percent of the population. A sample of one hundred fifty-seven families with children in the public schools was drawn. In order to ensure that several generations of Mexican-American families would be represented in the sample as well as families with other national origins, families with children at all three levels of the public schools - elementary, junior high and senior high - were stratified as shown in Table 1. From each stratum a random sample was drawn.

TABLE 1

In order to assess the characteristics of each child included in the model, a questionnaire was constructed and administered to all of the children from the families included in the sample who are presently attending the public schools. In all, 668 children completed the questionnaire. Also, the last semester English and mathematics grades for each child were obtained from school records.

FACTOR ANALYSIS OF THE STUDENT DATA

A sub-set of 30 questions from the 140 item student questionnaire was factor analyzed for a sample of 263 junior and senior high school students. The general purpose of the factor analysis was to identify the smallest set of dimensions that accounted for intercorrelations among the items. Following the identification of these factors, factor scores were calculated using the short regression method for each individual.[42] The advantages of factor analysis and the utilization of factor scores in the subsequent analysis are: first, factor analysis permits the examination of construct validity of such hypothetical concepts as achievement press, for which questionnaire items were constructed; second, the computation of factor scores permits an appreciable reduction in the number of variables dealt with in the study and allows us to account for relationships among these variables by a more cohesive set of dimensions; third, the factor scores obtained using the Kaiser Varimax Rotation are orthogonal, that is, are uncorrelated.

The results of the factor analysis using the sub-set of 30 items resulted in the identification of nine factors that accounted for 65.57 percent of the total variance. (See Table 2).

TABLE 2

Table 3 presents a brief description of the questionnaire items and factor loadings for each of the nine factors. The complete questions and responses are included in the appendix as are the intercorrelation matrix and the entire orthogonal factor matrix. The nine factors that were identified are described in subsequent sections of the paper.

TABLE 3

Language Usage in the Family

The first factor identified concerns the pattern of language usage among members of the family. Questionnaire items that make up this factor include the degree to which Spanish and/or English are used in conversations among members of the family and with close personal friends. Also, two of the questions ascertain the types of radio programs (Spanish or English) that are usually listened to by the parents and the child.

Student's Desire to Achieve in School

Factor two appears to reflect a general desire on the part of the child to seek recognition and to compete for success in school by getting good grades. This desire for success is coupled with an assessment of the relevance of school to everyday life. It is rather interesting to note that the child's desire to excel in school work is quite unrelated to the parent's attitudes in this respect.

Participation in Extracurricular Activities

The third factor reflects participation in the extracurricular or co-curricular area of school life. The four measures that load on this factor include a wide range of activities from academically oriented clubs to social and athletic activities. Slightly higher loadings are evident on the social and athletic items. This factor relects the child's relationship to the adolescent subculture of the school, rather than his relationship to other members of his family or to the academic aspects of the school.

Parental Stress on Academic Achievement

The strength of the parents' desire for the child to achieve in the school is suggested by the fourth factor extracted. The two questions shown in Table 3 reflect the parents' attitude toward school achievement and are unrelated to the student's own attitudes. Interestly, this lack of a relationship between parent and child with regard to educational goals may explain why there is often incongruence between the family and the adolescent's educational goals during adolescence.

Parental Stress on Completing High School

The fifth factor is indicative of the parents' demand for the child to complete high school. Note in particular that the loading for the mother as seen in Table 3 is higher than for the father. However, the child's perceptions of both his mother's and father's attitudes regarding the necessity for completing high school appear to be related to his own desire to complete high school despite possible job opportunities.

Parental Stress on Attending College

The sixth factor appears to relate the amount of stress the parents place on attaining a college education and the child's desire to attend college, technical or vocational school after completing high school. Moreover, both factors five and six embody a future time orientation which may be related to the child's vocational aspirations. The necessity of completing high school and attending college, then, may be viewed by the child as necessary prerequisites to achieving his vocational goals.

Parental Assistance With School Work

Factor seven reflects the amount of parental assistance with school work as reported by the child. As a factor it is quite distinct from the child's perception of stress or pressure to do well in school, to complete high school and to attend college. Here the emphasis is upon cooperation between parents and children in obtaining academic or school success.

Self-Concept of Ability

The questionnaire items that load on factor eight appear to measure the child's perceptions of his capacity in comparison to his peers. Also, it included the questions that assess his confidence in succeeding in high school and college. However, this measure of self-concept is distinct from the child's perceptions that others (parents or peers) have of his ability.

Student's Educational Aspirations

The ninth factor that emerges from the analysis, while not as clear cut as the others, apparently reflects a general level of educational aspiration. Items loading on this factor include dissapointment expressed by the child in the event that he were unable to complete high school, frequency of intentional absences from school, and the child's perception of his ability to complete college. It appears to combine the child's own desire to complete high school and to attend college and his self appraisal of his ability to accomplish these goals.

The Family, the Child and Achievement

These nine factors, then, provide measures of the child's attitudes and relationships in the school, the attitudes of the family towards education, and the degree to which the child's family supports his educational aspirations. The factors which describe the home environment include: the patterns of language usage in the home, the amount of emphasis placed on achievement (that is, getting good grades), completing high school, and going on to college, and the extent to which each parent assists the child with his school work.

The four factors that measure the child's attitudes toward school are: the degree and kind of participation in extracurricular activities, his desire to achieve in school, the child's concept of his own ability, and his educational aspirations.

Identification of these factors now permits us to examine differences among several generations of Mexican-American families on these characteristics. Mexican-American families will also be compared to families whose ancestors were born in other parts of the world and to non-Spanish speaking students born in the United States. The importance of studies, such as the one reported here, is that an understanding of the relationship of cultural factors to success in the school and the process of socio-cultural change within specific cultural groups is the first step toward enabling educators to alter existing educational programs for such groups.

MULTIPLE COMPARISONS AMONG THE SEVEN GROUPS

From the outset, one of the major purposes of this study has been to identify unique characteristics of Mexican-American families and to study the differential effect of family background on achievement. A stratified sample of families was drawn so as to

include families that have resided in the United States for one to five generations. In this section a number of planned comparisons among the group means have been performed. The seven groups described earlier were compared on two measures of student achievement, three socioeconomic characteristics, and the nine factors that characterize the student's achievement motivation and his parent's stress on education. Planned comparisons in this case have been performed in lieu of an analysis of variance since the primary interest is in a number of specific comparisons among the groups. Planned comparisons have the advantage of being more powerful in detecting differences when they exist than the various post hoc methods used after detecting a significant F-ratio in analysis of variance.[43]

The means for each group on each of the fourteen variables is shown in Table 4. These group means are based on samples of nineteen, thirty-six, thirty-two, thirty-four, fifty-nine, ten, and seventy-one, students, respectively.

TABLE 4

Table 5 gives the results of the multiple comparisons among the group means on each of the variables that characterize the student and his family.

TABLE 5

Mexican-American high school students on the whole receive lower grades in English than their classmates. Due to the coding of the grades (A was coded 1, B was coded 2, etc.) a low score in Table 4 represents a high grade. One would suspect such a finding, especially in light of the evidence that Spanish persists even among fourth generation families as the predominant language used in the home. An examination of Tables 4 and 5 reveals this fact. It is rather interesting to note, however, that children from fourth generation families that evidence little or no use of English in the home (group 4) apparently experience the most difficulty with English instruction in the school. Lack of exposure to the English language, other than during school hours, obviously has a debilitating affect on the child's mastery of English.

In contrast to English, there appears to be no significant differences in mathematical competence between Mexican-American students and other students. Furthermore, there appears to be no difference in mathematics grades among children from the four generations.

All three of the socioeconomic factors differentiate Mexican-American families from the other families. The relatively low level of father's education appears to persist even among fourth generation families despite gradual improvement in education from generation to generation. This finding agrees with the studies cited earlier that documented the educational gap among the Mexican-Americans. A low level of formal education is especially characteristic of the older generation.

On the other hand there appears to be a significant improvement in occupational level among third generation families. Also the same improvement in occupation occurs among those fourth generation families that adopt English in the home in addition to

Spanish. This is rather surprising in light of the consistently low educational level of male adults across four generations. One explanation of this phenomenon may have to do with the patterns of language usage in the home. The improved occupational level of the father corresponds to a significant increase in the use of English in the home. If one examines Table 5, both group three and group five manifest a significant increase in both the use of English in the home and the father's occupational status. This finding suggests that aside from formal educational attainment, an increased language facility leads to better job opportunities for Mexican-American males.

Like the father, the mother's education steadily improves from the first to the fourth generation. Despite this improvement, however, the mother's educational level among Mexican-American families remains significantly below that of other families.

Not too surprisingly language usage sharply differentiates Mexican-American children from other children. Apparently, to a large degree Spanish continues to be used in the home even after four generations have lived in the United States. However, group five is made up of fourth generation families that have adopted English to a much greater degree than the other Mexican-American families. Moreover, there appears to be a significant increase in the use of English among third generation families when compared to first and second generation families that retain the Spanish language almost entirely.

The second factor extracted from the student questionnaire measures the child's desire to compete with his classmates in school and to excell in terms of grades. Due to the negative regression weights from the factor analysis, a high positive score indicates a strong desire on the part of the student to attain high grades in school. Significantly, a large difference in achievement motivation exists between Mexican-American high school students and their peers. Mexican-American children in groups one through five express a stronger desire to obtain high grades than the other children. Moreover, an examination of Table 5 reveals that Mexican-American children on the whole experience as much pressure to achieve good grades in school, complete high school, and attend college from their parents as their contemporaries. These two findings strongly contradict the stereotype of the Mexican-American family as placing little emphasis on education. Furthermore, this interpretation is also borne out, when one examines the factor that indicates the degree to which children report parental assistance with their school work. On the whole there appears to be little or no difference between Mexican-American children and other children with repect to this factor, although, examination of the means reveals that the amount of assistance that children report increases with each generation. Again because of the direction of the scale, a low score indicates more parental assistance with school work.

When one examines the comparisons among groups on the other student variables, additional insight is gained. The F-ratio for the comparison of the four generations of Mexican-American children to children in groups six and seven on the degree of extracurricular participation does not exceed the critical value for significance. An examination of the group means suggests, however, that group six participates in these activities to a far greater extent than the other groups, although this finding may be an artifact of the small sample of ten students in group six. A high score in this instance indicates low participation in extracurricular activities.

The same observation can be made concerning the mean factor scores for self-concept of ability. The mean scores for groups six and seven indicate higher scores on the average for children in these two groups than for children in groups one through five. The scale is negative in direction with a high negative value indicating greater confidence on the part of the student in his ability to succeed in school. Again, however, the significance test in Table 5 fails to show this difference.

There may indeed be no significant difference between Mexican-American students and their classmates on either of these variables. However, one suspects that differences do exist and that the failure to detect them in this instance is a result of the inflated error term in the analysis, since the preliminary analysis has utilized a one factor design. These data are currently being reexamined to determine if this is indeed the case.

While there is no difference between Mexican-American children and others on the factor that measures the student's general educational aspirations, a difference does exist between children from first and second generation Mexican-American families. There appears to be a dramatic change in educational aspirations among children from second generation families. In contrast to the first generation, they evidence a heightened desire to complete a high school education.

The results of studies reviewed earlier in the paper suggest that all of these factors are related in varying degrees to the child's performance in the schools. Now that we have examined variations among groups on each of these dimensions, the next section will examine their relationship to the child's achievement in school.

MULTIPLE REGRESSION ANALYSIS RELATING HOME BACKGROUND AND ACHIEVEMENT MOTIVATION TO GRADES IN ENGLISH AND MATHEMATICS

Multiple regression permits the prediction of a criterion, in the present study grades in English and mathematics, from a set of predictor variables, such as the home background factors discussed earlier.[44] After the amount of variance of the criterion or dependent variable is empirically determined, a regression equation is determined which will maximize the variance in the criterion that can be predicted from knowledge of the set of independent variables or predictors.

Stepwise regression permits us to select those independent variables that contribute the most to the prediction of the criterion. Only those variables, characteristics of the student and his family in the present study, that significantly contribute to the prediction of the criterion (grades), are retained in the final regression equation.

A regression analysis was undertaken to explore the relationship that exists between success in high school and the factors that characterize the student and his home environment. The nine factor scores characterizing the student and his family, the sex of the student, the mother's educational level, and the father's educational level and occupation comprised the set of predictor variables. English grades were used as the criterion in one analysis. Mathematics grades were related to the independent variables in the second regression analysis.

In Table 6, variables which significantly contribute to the prediction of high school English grades and mathematics grades are indicated. The beta coefficients for each

independent variable indicates the relative contribution of that variable to the prediction equation.

TABLE 6

The multiple regression equation for the prediction of English grades has an F-ratio of 10.60 which is significant beyond the 0.001 level. The multiple correlation coefficient is 0.48 indicating that 23 percent of the variance in English grades among the high school students is predictable from seven variables that characterize the student and his home. The beta coefficients in Table 6 indicate that the student's score on the factor measuring his self-concept of ability is the most significant predictor of his achievement in English. Self-concept of ability is followed in importance by sex, father's education, the degree to which English is used among members of the family, the amount of stress parents place upon completing high school and attending college, and finally less pressure from parents to achieve good grades in school in that order.

The results of this analysis, then, suggest that a student whose achievement in English is high as assessed by the grade he receives is typically a girl, with a favorable self-appraisal of her ability in comparison to her peers, who comes from a family in which English is spoken in the home. She also perceives her parents as strongly emphasizing formal education, and her father, typically has completed high school and at least some college.

Four of the variables that characterize the student and his family appear to predict grades in high school mathematics. The mulitple correlation is 0.37 which means that four variables account for 13.8 percent of the variance in mathematic grades. The F-ratio for regression is 10.25 and, again, is significant beyond the 0.001 level.

As before, Table 6 indicates that self-concept of ability appears to contribute the most to the prediction of the student's success in school. Also, students who receive good grades in English and in mathematics apparently experience less overt pressure from parents to obtain high grades in school. Furthermore, these students perceive their parents as emphasizing the value of a college education. This finding may suggest that success in academic subjects such as English and mathematics may be enhanced if the child and his parents believe that what is taught in high school is relevant to future academic success at the college level.

It is rather interesting to note that the student's own desire to attain high grades is significantly related to his level of achievement in mathematics, whereas, language factors and father's education do not appear to be related to the student's mathematics grade. Furthermore, there appears to be no significant difference between male and female students as noted in predicting English grades.

Apparently, the home background of the child has a differential influence on the child's success in various areas of school work. Success in English appears to be highly dependent upon the general educational background of the father and the patterns of language usage in the home. In contrast, the development of competence in mathematics seems to be little influenced by either of these factors. Instead, success in mathematics appears to depend more directly upon the student's desire to do well in the school.

A most significant finding is the importance of a favorable self-image to the student's success in mathematics and in English. Successful performance in both subjects appears to be contingent upon a feeling of confidence on the part of the student in his ability to compete with his peers. This self-image is a product of the child's experiences in relating to parents, peers, teachers and other adults. At the high school level the child's confidence in his ability may be highly influenced by success or failure at the lower grades. Children, for example, who are retained in the first grade for an extra year, as are many Mexican-American children in the Southwest, may begin early to form a negative self-image that causes them to discount their ability to achieve at the level that the school expects. Whatsmore, in communities where the Mexican-American child perceives that his teachers expect little of him and consider him to be less capable than his Anglo classmates, as was the case in two New Mexico communities studied by Anderson and Safar,[45] failure on the part of many Mexican-American children may be almost foreordained.

SUMMARY AND IMPLICATIONS

Achievement and achievement motivation have their origins in the home as evidenced by a growing body of research; however, the relationship is rather complex. Factor analysis of data from the student questionnaire administered to high school students revealed several distinct dimensions characterizing the emphasis that parents' place on education. The parents' demand for achievement in the form of grades appears to be independent of their desire for their children to complete high school. Parental emphasis on high school graduation appears in turn to be independent of their emphasis on attending college. These three demands, as experienced by the high school students sampled in the present study, seem to characterize the attitude in the home toward formal education. Another of the factors extracted from the student data indicates the degree to which children report that their parents' assist them with their school work.

It is rather significant that there appears to be little difference between Mexican-American families and other families with respect to the amount of emphasis on education that the child experiences in his home. This finding is in contradistinction to the traditional notion that parents of Mexican-American children place little emphasis on formal education. Moreoever, there is little or no difference in the amount of parental emphasis on obtaining good grades in school, completing high school, and ultimately attending college among four generations of Mexican-American families.

While the child's desire to complete high school and attend college appear to be related to the parents' educational aspirations for their children, the child's own desire to compete and to achieve in the school, at least by the time he reaches high school, appears to be somewhat independent of his parents desires in this respect. Whatsmore, the Mexican-American children studied revealed a signifiantly high desire to succeed in school and attain high grades. Moreover, these children experience the same high degree of encouragement and assistance at home as do their classmates. This finding strongly suggests that the failure of many Mexican-American children is the result of inadequate educational programs and not the consequences of a low level of educational aspirations on the part of parents and child as a number of writers have maintained.

Large numbers of Mexican-Americans do fail in the schools.[46] Contributing to such failure on the part of Mexican-American children may be the persistence of Spanish as the major language spoken in the home. Even after residing in the United States for four generations many of these families heavily rely upon Spanish for intercommunication among members of the family. Consequently, many Mexican-American children begin school, where English is the language of communication, with language difficulties that other children never face.

If this factor were to account for all the variance in academic success, however, you might not expect other ethnic groups to exhibit similar patterns of failure. Researchers have ably documented the relationship of socioeconomic status to academic success and few would deny its pervasive influence. At the same time, the variables which are the cause or the effect of socioeconomic status are not clearly delimited. Nor is it known whether lack of academic success is the cause of low economic status or whether the reverse is true.

The current study is attempting to identify those background variables and family characteristics which appear to differentially affect the success of Mexican-American children in the schools. It has already been noted that there appears to be little difference between Mexican-American families and other families with respect to such home oriented factors as parental emphasis on obtaining good grades, completing high school and attending college. However, there are significant language differences between Anglo and Mexican-American families and a surprising stability in the use of Spanish in the home among four generations of Mexican-American families. Furthermore, the results of this preliminary study suggest that Mexican-American high school students may not participate in the school's extracurricular programs as much as their classmates. Also they may not have as much confidence in their ability to succeed in school as other children. However, it must be stressed that conclusive evidence concerning differences on these last two factors is lacking so far.

This study has also identified significant relationships between certain background variables and academic success as measured by teacher's grades. Achievement in the school appears to be differentially affected by these background variables. English achievement, as one might expect, is influenced by the language used in the home. Also the educational level of the parents, in particular the father, appears to be related to the child's mastery of this subject in school.

The amount of stress placed on formal education by the parents, however, appears to be more highly related to performance in English than in mathematics. Two of the factors that measure parental stress on educational achievement significantly contribute to the regression equation used to predict grades in English, namely emphasis on completing high school and attending college. In contrast only the parents' desire for their child to attend college appears to be related to the student's achievement in mathematics. This may reflect the parent's appreciation of the importance of English in the educational and occupational future of their children; whereas, there may not be as great a corresponding appreciation of the importance of mathematics aside from a basic arithmetic ability. In both instances students who do well in English and mathematics experience less pressure from parents to get good grades.

It is rather interesting that achievement in mathematics appears to be related to the student's own desire to achieve in school—a motivational factor that does not appear to be significantly related to achievement in English. Moreover, achievement in both English and mathematics appears to be strongly related to the student's self-concept of ability. His self-evaluation of his ability vis-a-vis his peers is in both instances by far the most significant factor in predicting the level of achievement in English and mathematics.

Probably one of the most significant findings that has so far emerged from this study is the discovery that Mexican-American children may have less confidence in their ability to successfully fulfill the expectations of their parents and the school than their contemporaries despite the high educational expectations of the child and his parents. If this observation is borne out by future research, it may be possible to significantly improve the academic performance of many Mexican-American children by designing educational programs that directly attempt to improve the degree of confidence that Mexican-American children have in their ability to succeed in school.

Unfortunately, at present, the schools may differentially influence the development of Mexican-American children's appraisal of their ability insofar as educational programs, in many instances, do little to compensate for the low level of competence in English among these children, other than retaining many Mexican-American children for an additional year in the first grade and thus almost guaranteeing failure and a negative experience from the very beginning.

What part the school does or can play in fostering achievement motivation and greater self-confidence among students is an important question. The schools in the past have taken several different approaches with Mexican-Americans. For example, the schools have attempted to motivate students and to develop a value orientation toward education by emphasizing enrichment experiences. They have also attempted to better satisfy the personal and social needs of these children. Some educators speak rather generally about the necessity for the creation of an adequate emotional and psychological climate for education. All of these approaches are based primarily on tradition and expert opinion. Most are attempts to reverse the influences that the child brings with him to school with little emphasis upon altering the institution itself.

A number of school districts have attempted to isolate the problem, thus, the ethnic group itself. These educators have favored homogeneous grouping in dealing with migrant children or Spanish-speaking children. The notion that grouping these children in special classes persists despite evidence that minority children's academic performance is adversely affected by being denied the stimulation that occurs when they interact with children from other ethnic groups and levels of ability.[47] In fact the results of Borg's study of the effects of ability grouping indicate that students evidenced lower scores on self-concept variables when they were placed in homogeneous groups.[48] The basic program remains the same for all children in these schools only less is expected of the children in the special programs and classes. Unfortunately, the goals of the educational program and the methods utilized in attaining them all too often remain for many students unrealistic and unobtainable. Special remedial programs, homogeneous grouping and the like to date have done little to make these rigid goals any more realistic for many minority children.

Certainly as demonstrated again in this study, no one ethnic group has a monopoly on the problems that appear to be deleterious to educational achievement, namely, a low level of educational aspirations on the part of parents and child coupled with a negative self-evaluation of ability to achieve in comparison with other children.

In fact, Martin Deutsch comes to a similar conclusion in attempting to account for failure among minority groups in New York City. He summarizes his observations in the following statement:

> The thesis here is that the lower-class child enters the school situation so poorly prepared to produce what the school demands that initial failures are almost inevitable, and the school experience becomes negatively rather than positively reinforced. Thus the child's experience in school does nothing to counteract the invidious influence to which he is exposed in his slum, and sometimes segregated neighborhoods.
>
> . . . We know that it is difficult for all peoples to span cultural discontinuities, and yet we make little if any effort to prepare administrative personnel or teachers and guidance staff to assist the child in this transition from one cultural context to another. This transition must have serious pyschological consequences for the child, and probably plays a major role in influencing his later perceptions of other social institutions as he is introduced to them.
>
> . . . The frustration inherent in not understanding, not succeeding, and not being stimulated in the school—although being regulated by it, creates a basis for the further development of negative self-images and low evaluations of individual competencies . . . . No matter how the parents might aspire to a higher achievement level for their child, their lack of knowledge as to the operational implementation, combined with the child's early failure experiences in the school, can so effectively attenuate confidence in his ability ever to handle competently challenge in the academic area, that the child loses all motivation.[49]

The schools, then, must more fully recognize this fact and develop the capacity to alter self-concepts and educational aspirations, important factors in every child's ability to achieve academic success. Such a response on the part of the school will require a more imaginative and flexible program than has been offered in general in the past.

NOTES

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STUDENT QUESTIONNAIRE

SECTION 1

1. I am a BOY (A) GIRL (B)

ONLY ANSWER THE FOLLOWING QUESTIONS IF YOU ARE NOW LIVING WITH YOUR FATHER OR STEPFATHER

17. How far did he go through school?

    (A) Never went to school
    (B) Some grade school
    (C) Finished grade school
    (D) Some high school
    (E) Graduated from high school
    (F) Trade or technical school
    (G) Some college
    (H) Graduated from college
    (I) I don't know

18. How much help does he give you with your school work?

    (A) Almost everytime I ask
    (B) Most of the time
    (C) About half the time
    (D) Once in awhile
    (E) Never

19. How much does he want you to finish high school?

    (A) Insists that I go
    (B) Wants me to finish, but lets me decide
    (C) Doesn't care
    (D) Rather that I didn't, but will let me finish if I want to
    (E) Won't let me finish high school

20. How much does he want you to get good grades?

    (A) He puts a lot of pressure on me
    (B) He gets after me frequently
    (C) He urges me to do well once in awhile
    (D) Lets me do as I please
    (E) Doesn't care

21. How much does he want you to attend college?

(A) Insists that I go
(B) Wants me to go, but lets me decide
(C) Doesn't care
(D) Rather that I didn't, but will let me go if I want to
(E) Won't let me go

22. What work does he do? You may find his exact job listed, but check the description that comes closest. If he is out of work or retired, mark the one he usually did. Mark only his main job if he has more than one.

(A) Unskilled Laborer (such as cannery worker, janitor, general hospital employee, farm laborer, window cleaner, hod carrier, general construction laborers)
(B) Skilled Manual Employee (such as auto body repairman, diemaker, fireman, radio-T.V. repairman, printer, carpenter, plumber, welder, butcher and barber)
(C) Clerical and Sales (such as bank teller, railroad conductor, shipping or warehouse clerk, draftsman, supervisor of maintenance, timekeeper)
(D) Administrative, Small Business and Semi-professional (such as credit manager, gas station owner, plumbing contractor, mortician, railroad dispatcher, deputy sheriff)
(E) Professional or Managerial (such as army major, lumber yard owner, lawyer, physician, teacher or pharmacist)
(F) He is unemployed

ONLY ANSWER THE FOLLOWING QUESTIONS IF YOU ARE NOW LIVING WITH YOUR MOTHER OR STEPMOTHER.

23. How often does she help you with your school work?

(A) Almost everytime I ask
(B) Most of the times I ask
(C) About half the time
(D) Once in awhile
(E) Never

24. How far did she go through school?

(A) Never went to school
(B) Some grade school
(C) Finished grade school
(D) Some high school

(see next page)

(E) Graduated from high school
(F) Trade or technical school
(G) Some college
(H) Graduated from college
(I) Don't know

25. How much does she want you to finish high school?

(A) Insists that I go
(B) Wants me to finish, but lets me decide
(C) Doesn't care
(D) Rather that I didn't, but will let me finish if I want to
(E) Doesn't care

26. How much does she want you to get good grades?

(A) She puts a lot of pressure on me
(B) She gets after me frequently
(C) She urges me to do well once in awhile
(D) Lets me do as I please
(E) Doesn't care

27. How much does she want you to attend college?

(A) Won't let me go
(B) Rather that I didn't, but will let me go if I want to
(C) Doesn't care
(D) Wants me to go, but lets me decide
(E) Insists that I go

36. Consider your close personal friends. What language do they speak?

(A) English all the time
(B) English most of the time
(C) English about half of the time
(D) A language other than English most of the time
(E) A language other than English all of the time

43. What language do your parents speak to each other?

(A) English all of the time
(B) English most of the time
(C) English about half of the time
(D) A language other than English most of the time
(E) A language other than English all of the time

(A) English all of the time
(B) English most of the time
(C) English about half of the time
(D) A language other than English most of the time
(E) A language other than English all of the time

45. What language do you use in talking to your parents?

(A) English all of the time
(B) English most of the time
(C) English about half of the time
(D) A language other than English most of the time
(E) A language other than English all of the time

46. In what language are the radio programs that your parents listen to?

(A) English all of the time
(B) English most of the time
(C) English about half of the time
(D) A language other than English most of the time
(E) A language other than English all of the time

47. In what language are the radio programs that you listen to?

(A) English all of the time
(B) English most of the time
(C) English about half of the time
(D) A language other than English most of the time
(E) A language other than English all of the time

SECTION 2

34. What are your plans following high school?

(A) Go to college
(B) Go to vocational or trade school
(C) Go to work
(D) Get married and become a housewife
(E) Join the Armed Services
(F) Undecided

(A) Never
(B) Seldom
(C) Sometimes
(D) Most of the time
(E) Always

37. Would you be disappointed if you couldn't finish high school?

(A) Very disappointed
(B) Disappointed
(C) Undecided
(D) Glad
(E) Very glad

41. During the last school year, did you ever stay away from school just because you didn't want to come?

(A) No
(B) Yes, for 1 or 2 days
(C) Yes, for 3 to 6 days
(D) Yes, for 7 to 15 days
(E) Yes, for 16 or more days

47. How active are you in athletics (include intramurals also) during this school year?

(A) Very active (hold offices, help organize, attend most meetings, etc.)
(B) Fairly active (attend most meetings, am interested in holding an office, etc.)
(C) Participate (attend about half of the meetings)
(D) Seldom participate (attend a few meetings, attend special events, etc.)
(E) Do not participate at all
(F) Our school does not have this activity

48. How active are you in academic clubs, service clubs, and hobby clubs (science, math, English, photography, chess, etc.)?

(A) Very active (hold offices, help organize, attend most meetings, etc.)
(B) Fairly active (attend most meetings, am interested in holding an office, etc.)
(C) Participate (attend about half of the meetings)
(D) Seldom participate (attend a few meetings, attend special events, etc.)
(E) Do not participate at all
(F) Our school does not have these activities

(A) Very active (hold offices, help organize, attend most meetings, etc.)
(B) Fairly active (attend most meetings, am interested in holding an office, etc.)
(C) Participate (attend about half of the meetings)
(D) Seldom participate (attend a few meetings, attend special events, etc.)
(E) Do not participate at all
(F) Our school does not have these activities

50. How active are you in school social activities (school dances, school parties, etc.)?

(A) Very active (hold offices, help organize, attend most meetings, etc.)
(B) Fairly active (attend most meetings, am interested in holding an office, etc.)
(C) Participate (attend about half of the meetings)
(D) Seldom participate (attend a few meetings, attend special events, etc.)
(E) Do not participate at all
(F) Our school does not have those activities

53. How much of what you are studying in school do you think will be valuable to you in everyday living?

(A) Practically everything I am studing
(B) Most of the things I am studing
(C) About half the things I am studing
(D) Much less than half of the things I am studing
(E) Very few of the things I am studing

54. If you could quit school and get a job that paid $75 a week right now, what would you do?

(A) I would definitely take the job
(B) I would think seriously about it and might quit school
(C) Undecided
(D) I would think about it but probably stay in school
(E) I would definitely stay in school

60. How do you rate yourself in school ability compared with your close friends?

(A) I am among the best
(B) I am above average
(C) I am average
(D) I am below average
(E) I am among the poorest

(A) I am among the best
(B) I am above average
(C) I am average
(D) I am below average
(E) I am among the poorest

62. Do you think you have the ability to complete high school?

(A) Yes, definitely
(B) Yes, probably
(C) I don't know
(D) Probably not
(E) Definitely not

63. Do you think you have the ability to complete college?

(A) Yes, definitely
(B) Yes, probably
(C) I don't know
(D) Probably not
(E) Definitely not

64. In your school work, how often do you try to do better than others?

(A) Always
(B) Most of the time
(C) Sometimes
(D) Seldom
(E) Never

65. How important to you are good grades compared with other aspects of school?

(A) The most important
(B) Among the most important
(C) Just as important as other things
(D) Not so important
(E) The least important

APPENDIX II

STUDENT QUESTIONNAIRE

INTERCORRELATION MATRIX

N = 263

	I - 18	I - 19	I - 20	I - 21	I - 23	I - 25	I - 26	I - 27	I - 36	I - 43	I - 44	I - 45	I - 46	I - 47	II - 34	II - 35	II - 37	II - 41	II - 47	II - 48	II - 49	II - 50	II - 53	II - 54	II - 60	II - 61	II - 62	II - 63	II - 64	II - 65
I - 18	1.000	0.125	0.207	0.109	0.629	0.095	0.166	-0.125	0.271	0.375	0.304	0.335	0.359	0.158	0.099	0.050	0.045	0.122	0.069	0.044	0.115	0.051	0.046	-0.123	-0.006	0.105	0.060	0.207	0.007	0.078
I - 19		1.000	0.166	0.190	-0.011	0.501	0.082	-0.129	0.120	0.039	0.115	0.075	0.051	0.100	0.102	0.024	0.149	0.230	0.026	-0.073	-0.099	-0.114	0.019	-0.136	-0.006	0.054	0.042	0.056	0.046	0.106
I - 20			1.000	0.325	0.216	0.010	0.635	-0.179	0.089	0.179	0.117	0.087	0.219	0.135	0.153	-0.034	0.121	0.060	0.137	0.062	0.119	0.064	0.053	-0.045	0.140	0.153	0.139	0.140	0.136	0.088
I - 21				1.000	0.124	0.009	0.185	-0.621	0.191	0.240	0.197	0.196	0.245	0.181	0.393	0.167	0.117	0.008	0.132	0.054	0.076	-0.002	0.071	-0.150	0.124	0.196	0.205	0.344	0.090	0.055
I - 23					1.000	-0.024	0.190	-0.095	0.089	0.246	0.140	0.212	0.224	0.060	0.141	0.040	-0.067	0.041	0.113	0.118	0.121	0.120	0.012	-0.027	-0.035	0.080	0.030	0.176	0.059	0.077
I - 25						1.000	0.014	-0.055	0.047	0.032	0.159	0.118	-0.059	0.003	0.074	0.115	0.187	0.206	0.013	-0.179	-0.161	-0.093	0.098	-0.369	-0.072	-0.012	0.106	0.064	0.067	0.186
I - 26							1.000	-0.182	0.043	0.056	0.072	0.052	0.153	0.172	0.029	-0.079	0.095	0.017	0.132	-0.003	0.069	0.133	0.019	-0.055	0.091	0.188	0.164	0.092	0.171	0.183
I - 27								1.000	-0.139	-0.141	-0.121	-0.134	-0.170	-0.065	-0.340	-0.147	-0.116	-0.091	-0.140	0.032	-0.030	0.042	-0.016	0.146	-0.062	-0.133	-0.058	-0.255	-0.010	-0.101
I - 36									1.000	0.708	0.728	0.746	0.582	0.377	0.317	0.206	0.127	-0.084	-0.056	0.030	0.186	-0.038	-0.054	-0.255	0.110	0.176	0.246	0.338	-0.124	-0.017
I - 43										1.000	0.725	0.845	0.728	0.442	0.328	0.113	0.029	-0.129	0.048	0.083	0.247	0.094	-0.082	-0.204	0.054	0.206	0.209	0.318	-0.157	-0.120
I - 44											1.000	0.848	0.587	0.369	0.310	0.177	0.143	-0.076	0.051	0.060	0.218	0.033	-0.016	-0.260	0.015	0.180	0.224	0.284	-0.067	-0.080
I - 45												1.000	0.722	0.446	0.351	0.167	0.072	-0.118	0.035	0.061	0.276	0.081	-0.035	-0.297	0.048	0.190	0.260	0.317	-0.126	-0.040
I - 46													1.000	0.524	0.324	0.119	0.078	-0.132	0.018	0.022	0.179	-0.010	-0.006	-0.102	0.058	0.206	0.263	0.226	-0.057	-0.007
I - 47														1.000	0.237	0.016	0.109	-0.041	0.050	0.031	0.088	-0.046	0.014	-0.070	-0.024	0.186	0.217	0.131	-0.109	0.057
II - 34															1.000	0.140	0.259	-0.021	0.090	0.162	0.182	0.117	-0.062	-0.242	0.187	0.226	0.259	0.447	0.031	0.070
II - 35																1.000	0.053	-0.007	-0.080	0.083	-0.085	-0.062	0.112	-0.201	0.317	0.220	0.215	0.249	0.081	0.086
II - 37																	1.000	0.132	-0.041	-0.017	0.040	-0.025	0.169	-0.266	0.162	0.260	0.262	0.256	0.138	0.273
II - 41																		1.000	0.041	-0.039	0.060	-0.023	0.153	-0.130	-0.057	0.033	0.072	0.137	0.223	0.285
II - 47																			1.000	0.296	0.277	0.409	0.021	-0.053	0.099	0.124	0.105	0.100	0.164	0.017
II - 48																				1.000	0.302	0.401	0.042	-0.073	0.165	0.222	0.111	0.160	0.029	0.015
II - 49																					1.000	0.352	-0.056	-0.052	0.139	0.252	0.129	0.319	0.075	-0.021
II - 50																						1.000	-0.042	-0.095	0.075	0.074	0.067	0.114	0.067	-0.019
II - 53																							1.000	-0.088	0.092	0.133	0.093	-0.039	0.199	0.261
II - 54																								1.000	-0.133	-0.116	-0.289	-0.358	-0.034	-0.165
II - 60																									1.000	0.626	0.281	0.324	0.186	0.057
II - 61																										1.000	0.364	0.423	0.213	0.054
II - 62																											1.000	0.389	0.156	0.094
II - 63																												1.000	0.130	0.107
II - 64																													1.000	0.367
II - 65																														1.000

APPENDIX III

ORTHOGONAL FACTOR MATRIX

VARIMAX ROTATION

VARIABLE	FACTOR LOADINGS									COMMUNALITIES
	I	II	III	IV	V	VI	VII	VIII	IX	h^2
I - 18	-0.2926	-0.0609	0.0086	-0.1195	-0.1014	0.0108	0.8114	-0.0023	0.0341	0.7738
I - 19	-0.0404	0.0033	-0.0841	-0.2184	-0.7279	0.1159	-0.0030	-0.0354	0.0021	0.6011
I - 20	-0.0940	-0.0322	0.0620	-0.7943	-0.0666	0.1837	0.1491	0.1137	0.0051	0.7181
I - 21	-0.1597	-0.0579	0.0398	-0.1875	-0.0439	0.8330	0.0124	0.1172	-0.0146	0.7756
I - 23	-0.1109	-0.0411	0.1066	-0.1289	0.0660	0.0767	0.8544	-0.0023	-0.0144	0.7825
I - 25	-0.0366	-0.1048	-0.0838	0.0258	-0.8648	-0.0365	0.0096	-0.0200	0.0409	0.7715
I - 26	-0.0539	-0.0905	0.0587	-0.8360	-0.0389	0.0608	0.0998	0.0920	0.0248	0.7379
I - 27	0.0527	0.0418	0.0163	0.0818	0.0668	-0.8606	-0.0669	0.0007	-0.0282	0.7619
I - 36	-0.8039	0.0899	-0.0536	0.0699	-0.0933	0.0815	0.0681	0.1530	0.0881	0.7134
I - 43	-0.8595	0.1495	0.0915	-0.0161	-0.0175	0.0950	0.1972	0.0738	0.0058	0.8237
I - 44	-0.8358	0.0559	0.0727	0.0401	-0.1817	0.0486	0.0917	0.0764	0.0306	0.7593
I - 45	-0.9075	0.0705	0.0931	0.0648	-0.1083	0.0592	0.1418	0.0787	0.0416	0.8847
I - 46	-0.8158	-0.0326	-0.0345	-0.1588	0.1136	0.1276	0.1375	0.0650	-0.0166	0.7458
I - 47	-0.6423	-0.1234	-0.0326	-0.2396	0.0604	0.0581	-0.1468	-0.0503	0.0440	0.5194
II - 34	-0.3151	0.0797	0.1326	0.0489	-0.0464	0.5222	-0.0054	0.1883	0.3528	0.5606
II - 35	-0.1104	-0.1616	-0.1049	0.3189	-0.1611	0.2133	0.1194	0.5660	-0.2908	0.6419
II - 37	-0.1118	-0.2682	-0.1298	-0.0913	-0.1721	0.0668	-0.1792	0.2129	0.5441	0.5174
II - 41	0.1857	-0.3574	-0.0062	0.0214	-0.2776	0.0192	0.2060	-0.1234	0.4399	0.4915
II - 47	0.0184	-0.0891	0.7358	-0.1665	-0.1075	0.1423	-0.0113	-0.0264	-0.0868	0.6177
II - 48	-0.0348	-0.0561	0.6747	0.0917	0.1153	0.0238	0.0422	0.2086	-0.0557	0.5304
II - 49	-0.2120	0.0892	0.5419	-0.0428	02182	-0.0221	0.0939	0.0852	0.4097	0.5807
II - 50	0.0051	0.0492	0.7918	-0.0429	0.0158	-0.0565	0.0477	0.0076	0.0600	0.6407
II - 53	-0.0330	-0.7559	0.0140	0.0500	-0.0282	0.0017	-0.0379	0.0970	-0.2139	0.6328
II - 54	0.2066	0.0758	-0.1236	-0.1691	0.5197	-0.1101	-0.0261	-0.2186	-0.2617	0.4917
II - 60	0.0389	-0.0156	0.0810	-0.0885	0.0483	0.0290	-0.0387	0.8447	0.0051	0.7346
II - 61	-0.1456	-0.0912	0.1185	-0.1852	0.0525	0.0419	0.0148	0.7503	0.1515	0.6687
II - 62	-0.2708	-0.1351	0.0806	-0.1128	-0.1194	0.0334	-0.1062	0.4835	0.2593	0.4386
II - 63	-0.2116	0.0683	0.1308	0.0672	-0.0735	0.3208	0.2059	0.4730	0.5048	0.7006
II - 64	0.1812	-0.5459	0.1163	-0.1651	-0.0046	-0.0042	0.0680	0.2125	0.1735	0.4517
II - 65	0.0469	-0.7017	0.0468	-0.0675	-0.1006	0.0613	0.0723	-0.0211	0.2863	0.6029

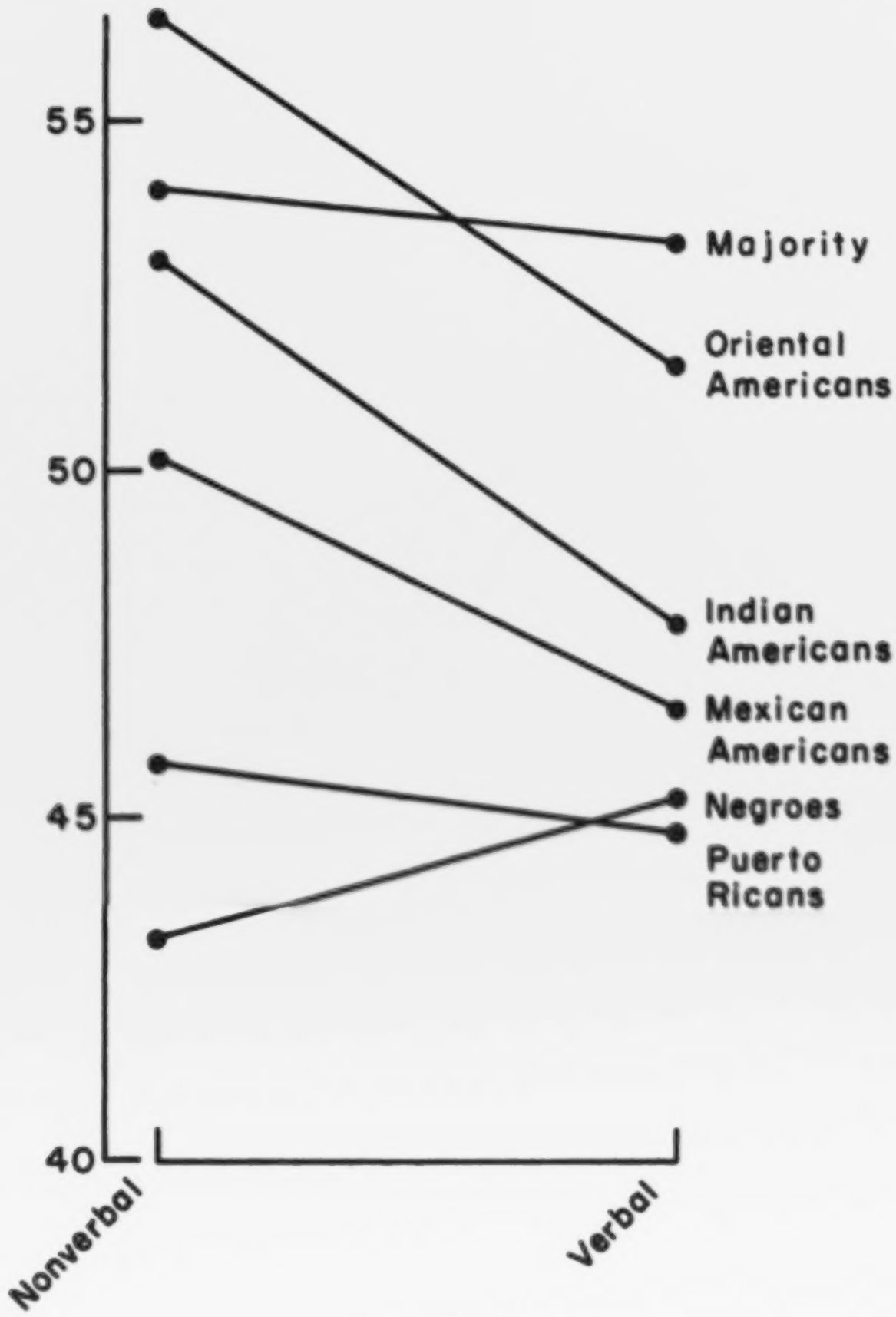

FIGURE 1

NATIONWIDE MEDIAN TEST SCORES
FIRST GRADE PUPILS[1]

[1]These data are taken from Equality of Educational Opportunity (Washington, D.C.: GPO, 1966), OE-38000, Table 9, p.20.

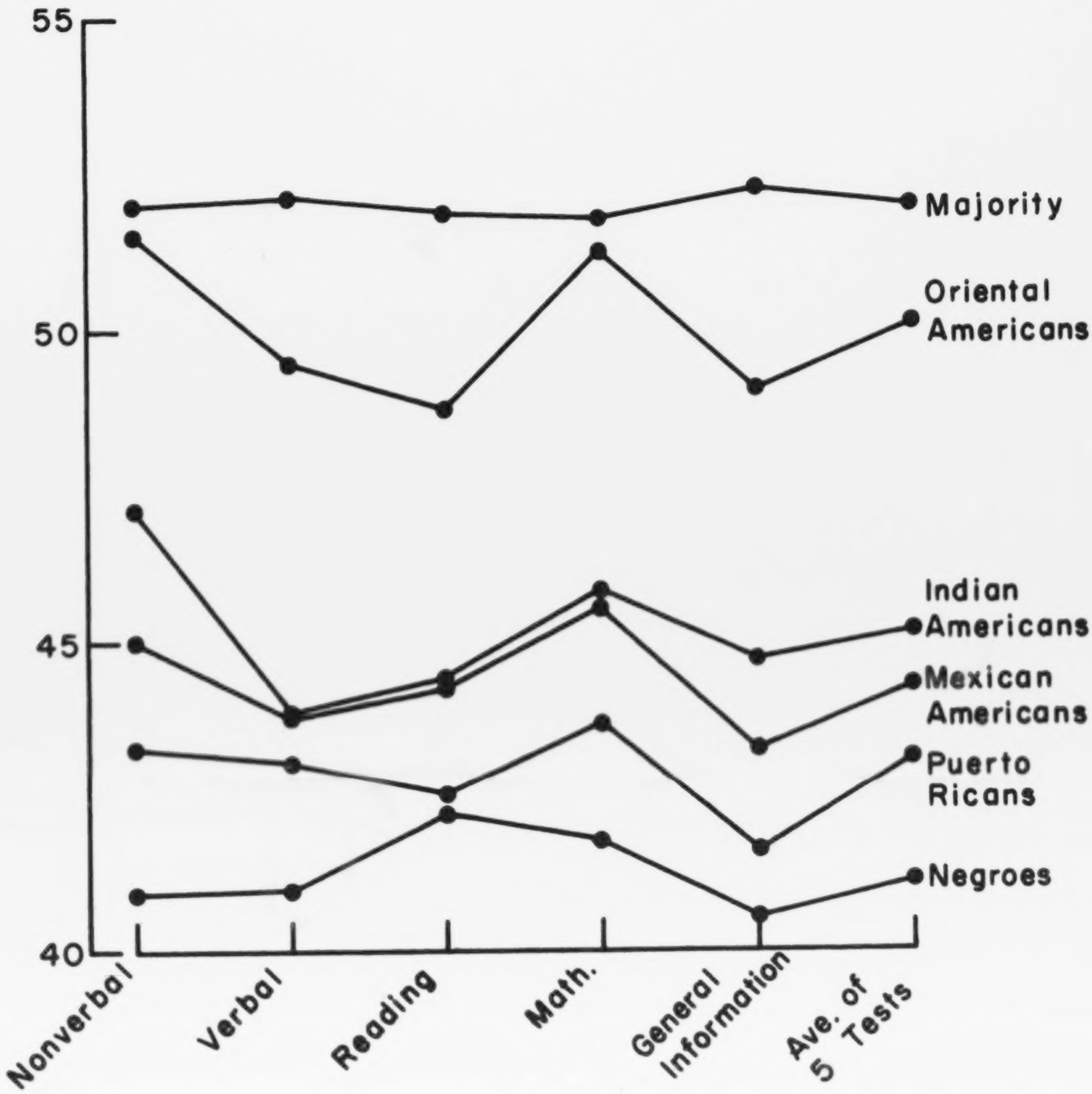

FIGURE 2

NATIONWIDE MEDIAN TEST SCORES
TWELFTH GRADE PUPILS[1]

[1]These data are taken from Equality of Educational Opportunity (Washington, D.C.: GPO, 1966), OE-38000, Table 9, p. 20.

FIGURE 3

A MODEL OF ACHIEVEMENT MOTIVATION
AND ACHIEVEMENT

HOME ENVIRONMENT	STUDENT'S ACHIEVEMENT MOTIVATION	STUDENT'S ACHIEVEMENT
Patterns of Language Usage	Self-Concept of Ability	
Stress on Achievement	Achievement Motivation	Grades in School
Educational Aspirations for children	Educational Aspirations	
Mother and Father's Educational Level	Student's Perception of his teacher and of the school	
Father's Occupation		

TABLE 1

FAMILIES WITH CHILDREN AT
ALL THREE LEVELS OF THE
PUBLIC SCHOOLS STRATIFIED BY
NATIONALITY AND BY GENERATION

GROUPS	NATIONALITY	POPULATION	SAMPLE
1	First Generation Mexican-Americans	14	14
2	Second Generation Mexican-Americans	19	19
3	Third Generation Mexican-Americans	24	24
4	Fourth Generation Mexican-Americans (Spanish spoken in the home)	21	21
5	Fourth Generation Mexican-Americans (Spanish and English spoken in the home)	71	36
6	First to fourth generation Nationality other than Mexican-American	11	11
7	Fifth Generation or more All nationalities	56	38
	TOTAL	216	163

TABLE 2

CHARACTERISTIC ROOTS AND CUMULATIVE
PERCENTAGE OF VARIANCE ACCOUNTED FOR BY
THE NINE FACTORS EXTRACTED IN THE FACTOR ANALYSIS

FACTOR	CHARACTERISTIC ROOT	CUMULATIVE PERCENTAGE OF TRACE
1	5.8459	19.49
2	2.9315	29.26
3	2.3463	37.08
4	1.9691	43.64
5	1.6166	49.03
6	1.4710	53.94
7	1.3199	58.34
8	1.1304	62.10
9	1.0401	65.57

TABLE 3

FACTOR LOADINGS AND COMMUNALITIES FOR
THIRTY STUDENT QUESTIONNAIRE ITEMS

QUESTIONNAIRE ITEM NO.	GENERAL CONTENT	FACTOR LOADING I	II	III	IV	V	VI	VII	VIII	IX	COMMUNALITY h^2
	Language Usage in the Family										
I – 36	Language used with personal friends	-0.8039									0.7134
I – 43	Language used by parents to each other	-0.8595									0.8237
I – 44	Language used with brothers and sisters	-0.8358									0.7593
I – 45	Language used between child and parent	-0.9075									0.8847
I – 46	Language of radio programs listened to by parents	-0.8158									0.7458
I – 47	Language of Radio programs listened to by child	-0.6423									0.5194
	Desire to Achieve in School										
II – 53	How valuable will school work be to you in everyday life?		-0.7559								0.6328
II – 64	Do you try to do better than others in school?		-0.5459								0.4517
II – 65	How important is it to you to get good grades?		-0.7017								0.6029
	Participation in Extracurricular Activities										
II – 47	Participation in athletics			0.7358							0.6177
II – 48	Participation in clubs			0.6747							0.5304
II – 49	Participation in speech, drama, music			0.5419							0.5807
II – 50	Participation in school social activities			0.7918							0.6407
	Parental Stress on Academic Achievement										
I – 20	Father wants you to get good grades				-0.7943						0.7181
I – 26	Mother wants you to get good grades				-0.8360						0.7379

TABLE 3 (Continued)

QUESTIONNAIRE ITEM NO.	GENERAL CONTENT	FACTOR LOADING I	II	III	IV	V	VI	VII	VIII	IX	COMMUNALITY h^2
	Parental Stress on Completing High School										
I – 19	Father wants you to finish high school					-0.7279					0.6011
I – 25	Mother wants you to finish high school					-0.8648					0.7715
II – 54	Would you quit school for a job?					0.5197					0.4917
	Parental Stress on Attending College										
I – 21	Father wants you to attend college						0.8330				0.7756
I – 27	Mother wants you to attend college						-0.8606				0.7619
II – 34	Plans following high school						0.5222				0.5606
	Parental Assistance With School Work										
I – 18	Father helps with school work							0.8114			0.7738
I – 23	Mother helps with school work							0.8544			0.7825
	Self-Concept of Ability										
II – 35	I feel that I just cannot learn								0.5660		0.6419
II – 60	How do you compare in ability with your close friends?								0.8447		0.7346
II – 61	How do you compare in ability with others your age?								0.7503		0.6687
II – 62	Do you have the ability to complete high school?								0.4835		0.4386
II – 63	Do you have the ability to complete college?								0.4730		0.7006
	Educational Aspirations										
II – 37	Disappointment at not finishing high school									0.5441	0.5174
II – 41	Intentional absence from school									0.4339	0.4915
II – 49	Participation in speech, drama, music									0.4097	0.5807
II – 63	Do you have the ability to complete college?									0.5048	0.7006

TABLE 4

GROUP MEANS FOR FOURTEEN CHARACTERISTICS OF THE STUDENT AND HIS FAMILY

GROUPS	NATIONALITY	GRADES		CHARACTERISTICS OF THE STUDENT AND HIS FAMILY											
		ENGLISH	MATH	Father's Education	Father's Occupation	Mother's Education	Language Usage in the Family	Student's Desire to Achieve	Participation in Extracurricular Activities	Parental Stress on Academic Achievement	Parental Stress on Completing High School	Parental Stress on Attending College	Parental Assistance with School Work	Student's Self-concept of Ability	Student's Educational Aspirations
1	First Generation Mexican-Americans	1.7895	2.0526	2.5263	0.4211	2.7368	-0.8201	-0.0982	0.2496	-0.0821	0.3691	-0.3692	0.3174	-0.2071	-0.3066
2	Second Generation Mexican-Americans	1.4722	1.8333	3.2500	0.5556	2.8056	-0.9514	0.0793	-0.0539	-0.1853	-0.0318	0.0153	0.1797	0.2541	0.2460
3	Third Generation Mexican-Americans	1.6250	1.6250	3.6250	1.2813	3.0313	-0.0889	0.0423	0.0260	-0.0517	0.0998	0.1049	0.1435	-0.0279	-0.1802
4	Fourth Generation Mexican-Americans (Spanish spoken in the home)	2.3824	2.9294	3.8824	1.0294	3.3824	-0.6944	0.2159	-0.0263	0.4916	0.0177	0.1500	-0.0260	0.0062	0.0919
5	Fourth Generation Mexican-Americans (Spanish and English spoken in the home)	2.0169	1.8814	3.01670	1.2542	4.0000	-0.2807	0.1668	0.0757	-0.0493	-0.1696	0.1112	-0.1153	0.1350	0.0072
6	First to fourth generation Nationality other than Mexican-American	1.4000	2.1000	5.4000	3.2000	5.2000	1.1547	-0.5476	-0.3694	-0.0407	-0.1428	-0.1750	0.0182	-0.2000	-0.0508
7	Fifth Generation or more	1.3380	1.7183	5.6197	2.6901	4.7887	1.1130	-0.1932	-0.0507	-0.0554	0.0295	-0.0745	-0.1642	-0.1645	0.0121
	All nationalities														
	GRAND MEAN	1.7164	1.8390	4.0000	1.5363	3.8045	-0.0087	0.0012	-0.0003	-0.0016	0.0013	0.0058	-0.0079	-0.0045	0.0044

TABLE 5

F-RATIOS FOR MULTIPLE COMPARISONS AMONG THE GROUP MEANS

GROUP COMPARISONS			GRADES		CHARACTERISTICS OF THE STUDENT AND HIS FAMILY											
			English	Mathematics	Father's Education	Father's Occupation	Mother's Education	Language Usage in the home	Student's Desire to Achieve	Participation in Extracurricular Activities	Parental Stress on Academic Achievement	Parental Stress on completing High School	Parental Stress on attending College	Parental Assistance with School work	Student's Self-concept of Ability	Student's Educational Aspirations
1+2+3+4+5	vs	6+7	9.43**	0.02	21.83***	68.90***	15.01***	321.24***	8.20**	2.34	0.21	0.51	0.61	1.15	1.78	0.00
6	vs	7	0.05	1.30	0.06	1.32	0.24	0.59	1.80	1.27	0.00	0.36	0.12	0.39	0.02	0.06
1+2+3+4	vs	5	2.14	0.00	0.54	4.20*	6.38*	19.26***	0.73	0.04	0.47	4.26*	0.95	3.78	0.87	0.13
1+2+3	vs	4	18.73***	0.90	2.01	1.06	1.06	0.51	1.69	0.34	12.00***	0.54	1.71	1.85	0.00	1.24
1+2	vs	3	0.00	2.01	1.59	7.09**	0.21	47.70***	0.09	0.14	0.18	0.13	2.04	0.29	0.07	0.77
1	vs	2	1.73	0.61	0.98	0.13	0.09	0.70	0.64	1.64	0.19	2.74	2.43	0.32	3.58	6.65**

*** Significant at the 0.001 level
** Significant at the 0.01 level
* Significant at the 0.05 level

TABLE 6

STEPWISE MULTIPLE LINEAR REGRESSION
BETA COEFFICIENTS

INDEPENDENT VARIABLES	DEPENDENT VARIABLE	
	English	Mathematics
Self-concept of Ability	0.3097	0.3059
Sex: Female	-0.2044	
Father's Education	-0.1512	
Language Usage in the Family	-0.1416	
Parental Stress on Academic Achievement	0.0966	0.1256
Student's Desire to Achieve in School		-0.1204
Parental Stress on Completing High School	-0.1110	
Parental Stress on Attending College	0.1050	0.1011